

REMARKS

In the specification, new paragraphs have been added to reflect the status of this application as a continuation-in-part of U.S. Patent Application Serial No. 09/419,345 filed on October 15, 1999, which subsequently issued into U.S. Patent No. 6,355,072 on March 12, 2002. The continuing application status was noted on the Patent Application Transmittal Form filed with the original application on April 18, 2001 but inadvertently omitted from the specification.

Claims 1-54 were rejected in the last Office Action. Claim 1 has been amended, and claims 2-54 depend from claim 1. Support for the amendment to claim 1 can be found in the specification at least on the following pages: Page 5, lines 32-34; page 6, lines 5-8 and 24; page 7, lines 22-23; page 8, lines 29-30 and 33-34; page 17, lines 11-14; page 18, lines 5-6 and 12-13; page 19, lines 6-7; page 20, lines 33-34; page 21, lines 1-2; page 22, lines 16-17 and 23-24; and page 23, lines 13-14.

No new matter has been added by this amendment. Claims 55-108 were previously withdrawn under a restriction requirement.

I. Rejections under 35 U.S.C. § 102(b)

A. Claims 1, 14-17, 28-35, 42-44, and 54

Claims 1, 14-17, 28-35, 42-44, and 54 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,858,022 issued to Romack et al. (Romack). Applicants respectfully traverse this rejection and request reconsideration and withdrawal of this rejection.

The Office Action stated that Romack teaches a two-step process using carbon dioxide/organic solvent to clean and carbon dioxide to rinse. Romack in fact teaches that the rinse step is optional. In addition, because Romack uses a solvent mixture of liquid carbon

dioxide and organic solvent, the cleaning step requires a pressurized vessel. On the other hand, the cleaning step of the present invention is performed in a non-pressurized vessel using organic solvents in the absence of liquid carbon dioxide such that pressurized cleaning is not required.

The entire disclosure of Romack is directed to a carbon dioxide-based dry cleaning system. While Romack does disclose the addition of certain co-solvents to the carbon dioxide to enhance the cleaning process, the cleaning process remains a pressurized carbon dioxide cleaning process. In column 2, lines 34-44, Romack discloses certain ranges for the amount of each component used in the cleaning composition, and the minimum level of carbon dioxide used in the cleaning composition is 30 percent. Even at this minimum level of carbon dioxide, using Raoult's Law, the cleaning vessel must be constructed to withstand pressures of at least 370 pounds per square inch (psi). At higher concentrations of carbon dioxide in the cleaning composition, the pressure will be even greater.

In contrast, the present invention is a process that uses an organic cleaning solvent that is not pressurized in the manner that carbon dioxide cleaning requires. Indeed, the organic cleaning solvent can be used to clean substrates at or near atmospheric pressure, which is much lower than the minimum of 370 psi required in Romack. Thus, the high pressure carbon dioxide cleaning process of Romack cannot anticipate the process claimed in the present invention. Therefore, claims 1, 14-17, 28-35, 42-44, and 54 are patentable over Romack.

For at least the afore-mentioned reasons, Applicants respectfully submit that claims 1, 14-17, 28-35, 42-44, and 54 are presently in condition for allowance and request favorable consideration and timely allowance of these claims.

B. Claims 1, 6-9, 14-21, 32-44, and 54

Claims 1, 6-9, 14-21, 32-44, and 54 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,683,977 issued to Jureller et al. (Jureller). Applicants respectfully traverse this rejection and request reconsideration and withdrawal of this rejection.

The Office Action stated that Jureller teaches a two-step cleaning system using carbon dioxide and organic solvent to clean and carbon dioxide thereafter to "flush the cleaning vessel." See column 2, lines 39-47. Therefore, the cleaning system of Jureller is essentially that of Romack above, in that Jureller is directed to a carbon dioxide-based dry cleaning system and requires pressurized cleaning because of the cleaning step using carbon dioxide.

However, the cleaning step of the present invention is performed in an organic solvent in the absence of liquid carbon dioxide for a time sufficient to clean the substrates in a vessel that is not pressurized. The cleaning step can be performed using low pressure organic solvents, such that pressurized cleaning is not required. Moreover, when the organic solvent is removed by a pressurized fluid solvent, when the pressurized fluid solvent is liquid carbon dioxide it is at a subcritical condition.

Jureller also discloses certain co-solvents suitable for the first stage of cleaning with carbon dioxide. However, the cleaning process remains a pressurized carbon dioxide cleaning process. In column 2, lines 45-46 and column 3, lines 59-64, Jureller discloses that during the dry cleaning process, the pressure is about 700 psi to about 10,000 psi. Thus, Jureller requires pressurized cleaning.

In contrast, the present invention is a process that uses an organic cleaning solvent that is not pressurized in the manner that carbon dioxide cleaning requires. Indeed, the organic cleaning solvent can be used to clean substrates at or near atmospheric pressure, which is much lower than

the 700 psi required in Jureller. Thus, the high pressure carbon dioxide cleaning process of Jureller cannot anticipate the process claimed in the present invention. Therefore, claims 1, 6-9, 14-21, 32-44, and 54 are patentable over Jureller.

For at least the afore-mentioned reasons, Applicants respectfully submit that claims 1, 6-9, 14-21, 32-44, and 54 are presently in condition for allowance and request favorable consideration and timely allowance of these claims.

II. Rejection under 35 U.S.C. § 102(e)

Claims 1-5, 10-38, and 42-54 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,491,730 issued to Cauble, Jr. et al. (Cauble). Applicants respectfully traverse this rejection and request reconsideration and withdrawal of this rejection.

The Office Action stated that Cauble teaches a method of pretreating fabrics before dry cleaning with carbon dioxide. Cauble discloses a method of cleaning using a mixture of carbon dioxide and a cleaning surfactant. Because Cauble uses a solvent mixture of carbon dioxide and cleaning surfactant, the cleaning step requires a pressurized vessel. However, the cleaning step of the present invention is in a non-pressurized vessel and can be performed using low pressure organic solvents such that pressurized cleaning is not required. Moreover, the cleaning step of the present invention is for a time sufficient to clean the substrates using an organic solvent in the absence of liquid carbon dioxide.

While Cauble does disclose various pretreatment solvents and surfactants suitable for the disclosed invention, the cleaning process remains a pressurized carbon dioxide cleaning process. In column 3, lines 50-60, Cauble discloses certain ranges for the amount of each component used in the cleaning composition, and the minimum level of carbon dioxide used in the cleaning composition is indicated to be 30 percent. Even at this minimum level of carbon dioxide, using

Raoult's Law, the cleaning vessel must be constructed to withstand pressures of at least 370 pounds per square inch (psi). At higher concentrations of carbon dioxide in the cleaning composition, the pressure will be even greater.

In contrast, the present invention is a process that uses an organic cleaning solvent that is not pressurized in the manner that carbon dioxide cleaning requires. Indeed, the organic cleaning solvent can be used to clean substrates at or near atmospheric pressure, which is much lower than the minimum of 370 psi required in Cauble. Thus, the high pressure carbon dioxide cleaning process of Cauble cannot anticipate the process claimed in the present invention. Therefore, claims 1-5, 10-38, and 42-54 are patentable over Cauble.

For at least the afore-mentioned reasons, Applicants respectfully submit that claims 1-5, 10-38, and 42-54 are presently in condition for allowance and request favorable consideration and timely allowance of these claims.

III. Double patenting rejection

Claims 1 and 10-13 were rejected over claims 1 and 11-13 of U.S. Patent No. 6,355,072 issued to Racette et al. (Racette) under the doctrine of obviousness-type double patenting. The Office Action stated that claims 1 and 10-13 of the present invention were not patentably distinct over the cited claims of Racette, which teach a cleaning vessel that is not pressurized during the pretreatment.

A terminal disclaimer is enclosed in response to this rejection. Withdrawal of this rejection is respectfully requested.

CONCLUSION

With entry of the above Amendment and in view of the foregoing Remarks, Applicants respectfully submits that any outstanding rejections and objections have been overcome.

Applicants respectfully requests withdrawal of the rejections and objections and that a timely Notice of Allowance be issued in this application.

None of Applicants' amendments are to be construed as dedicating any such subject matter to the public, and Applicants reserves all rights to pursue any such subject matter in this or a related patent application. If, in the opinion of the Examiner, a phone call may help to expedite prosecution of this application, the Examiner is invited to call Applicants' undersigned attorney at (312) 701-8775.

Respectfully submitted,

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